

NML builds biggest magnet

By Chuck Kolb

The strongest continuous magnetic fields yet generated by man were reached at the National Magnet Laboratory last Thursday.

Achievement of record magnetic fields of up to 255,000 gauss was announced jointly November 5 by the Air Force Office of Scientific Research, which supports and sponsors the NML, and MIT, which operates the laboratory. Highest fields previously reported were on the order of 152,000 gauss.

Dr. Benjamin Lax, NML director since its inception in 1960, described the new record field capacity as a major milestone in research dealing with high magnetic field phenomena.

Technical details of the NML achievement were contained in two reports presented last Friday at the Northeast Electronics Research and Engineering Meeting held in Boston under the sponsorship of the Institute of Electrical and Electronics Engineers. The reports were made by Dr. Arthur J. Freeman, Associate Director of NML, and D. Bruce Montgomery, the NML researcher who directed the design and development of the new magnet.

The NML magnet was first brought up to a peak 255,000 gauss field Friday, October 30;



D. Bruce Montgomery, staff member of the National Magnet Laboratory, adjusts the laboratory's new magnet. The magnet is capable of generating the strongest field yet made by man—255,000 gauss.

maximum fields were maintained for periods of a minute.

At peak field, the magnet drew more than 10 million watts of electrical power supplied by the Cambridge Electric Light Co., or approximately one tenth of the

power consumption of the city of Cambridge at a given time. This power is converted to direct current by four large motor-generator units at NML.

The 255,000 gauss magnet obtains 205,000 gauss from a solenoid in a working space of 2 1/2 inches in diameter. It achieves the peak 255,000 gauss field by adding two iron poles, reducing the working area to a disc 1/2 inch in diameter and 1/64 inch high.

The 56,000 amperes of current used in the magnet create power densities of 500,000 watts per cubic inch and pressures exceeding 60,000 pounds per square inch. The magnet is cooled by 2,000 gallons of water per minute.

Mr. Montgomery expects to be able to push the peak continuous field to 300,000 gauss in the near future.

In order to expedite the discussion, the CEP held open sessions for the faculty during past weeks to explain and discuss the proposals.

The CCCP proposal for a quarter system has been dropped. However, several of the other proposals, and much of the spirit, of the Zacharias report remain intact. Included are: tutorial help for freshmen, plans for reduction of the number of subjects taken in any one term, and larger hour unit blocks for subjects. The avowed design is to offer greater flexibility to those students who do not wish to commit themselves early to one specialty, without loss to those who are sure in the beginning of their field. Another concern was "the awful pressure of the immediate work to be done."

CCCP undergraduate curriculum revisions set for action at faculty meeting next week

Several proposals that could drastically affect the undergraduate curriculum will be discussed and treated next Wednesday at the November meeting of the faculty.

The proposals were placed before the faculty last month by the faculty Committee on Educational Policy. Most of the proposals stem directly from the May report of the Committee on Curriculum Content Planning—the Zacharias report.

Prof. A. H. Shapiro of Course II, chairman of the faculty, expressed hope that the faculty

would reach a vote this month on some of the proposals. If the measures are approved this fall, many would go into effect beginning with the fall freshman class.

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NDEA loans expand aid

The Student Aid Office, once reticent, is now totally committed to use of federal funds for student loans under the 1958 National Defense Education Act.

Approximately \$650,000 of federal money has been loaned to graduate and undergraduate students since MIT received notification of approval for its first NDEA fund request last June.

A review in the summer of 1963 by the Aid Office indicated that Technology Loan Fund resources and other sources of aid would soon prove inadequate. Application for MIT participation in the NDEA program had up to that time been avoided by reliance on local sources. The administration was also unhappy with the strongly worded and much discussed disclaimer affidavit regarding supposedly Communist activity of the loan recipient. (This was modified by a Kennedy bill in 1961.)

Up to \$1000 per year may currently be loaned to MIT undergraduates, although this is not a permanent figure. Next year it is hoped that up to \$2500 per year

will be available to deserving graduate students.

No interest is charged on these loans while the student remains in school, in military service, or in the Peace Corps. One year of grace is allowed following graduation or discharge; ten percent of the loan plus accumulated interest (at 3%) then becomes due each year for the next ten.

A unique feature of these loans is teaching cancellation: for each year that the beneficiary spends teaching, he is "forgiven" by the government for 10% of his loan. This process may be used to "pay off" up to 50% of the loan. MIT interest in the NDEA program was considerably sparked by the recent revision that included college teaching under the "forgettable" provisions.

Application for the loans is approximately the same as that for an MIT loan, although a bent towards teaching is helpful. The new funds have allowed the Aid office to take the old \$1700 limit off graduate loans and has removed some grade average restrictions on undergraduate loans.

Architecture class designs dorms for West Campus as an exercise

Junior Course IV members of Professor Marvin E. Goody's course in Architectural Design (4.131) have been at work recently planning for a series of four proposed new MIT dormitories. Institute officials and faculty recommendations concerning size, style and atmosphere of the proposed buildings are being considered by the class.

In an effort to appreciate the needs and plans of the Institute in housing expansion, the class has heard Kenneth R. Wadleigh, Dean of Student Affairs, and Robert Simha, Institute Planning Officer. Copies of the faculty Com-

mittee on Student Environment report of November 1963 ("An Interim Report on Housing for Undergraduate Men at MIT") have been consulted.

Although no funds have been allocated and few are in sight for new dormitory construction, site photos of the land between Burton House and Westgate on Memorial Drive have been taken.

The proposals in their current form call for the eventual construction of four identical dormitories, each housing 300 undergraduate men, strung linearly along the Drive.

THE TECH



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Five Cents

Fire strikes East Campus Sunday night

(Special to The Tech)
A fire originating in Goodale 514, East Campus, caused extensive smoke and water damage to halls and rooms Sunday night. Roaring flames leaped from the fifth floor window of John Chang

'67, a Course XVI student, shortly after 11 p.m.; a general alarm was received at the Cambridge Fire Department at 11:15.

Although flames lasted only 10 minutes after the arrival of the fire trucks, walls were blackened

and ceilings destroyed in the adjoining room. The hall and other nearby rooms suffered smoke damage.

According to a statement by John Kenney, Deputy Chief of Cambridge, there were some indications of arson, and the State Fire Marshal's office has been notified. A fireman at the blaze remarked, "somebody's going to jail for this."

Reports indicate that the room had been stuffed with newspapers and magazines prior to the incident.

Chang was taken to the MIT infirmary with a burned hand and arm.

Provision for temporary quarters for students displaced was made with cots and blankets by Dean Fassett within the hour. Approximately 10 students were so displaced.

Dean Fassett's only comment to reporters indicated that the fire "was an extremely regrettable incident."

In a similar but unrelated incident, fire trucks converged upon Burton House Sunday afternoon in response to an alarm provoked by an incinerator.

The MIT general catalogue has

the following statement regarding student housing (page 341):

"Every effort is made for the physical safety of residents of the Houses, with proper fire alarm systems, fire extinguishers, and other equipment. . .

"The institute does not carry fire insurance covering property of resident of the Houses, who therefore may wish to provide their own by direct contact or by a rider on a family domestic policy."



Photo by John Torode

Flames and smoke burst from window of East Campus room Sunday night. Fire occurred shortly after 11 pm as alarms routed residents from their rooms.



Photo by John Torode

Interior of Goodale 514 just after Sunday night's fire was extinguished. Fire damage was also heavy in adjoining room and hall.

Daniels places first

Students honored for technical papers

Four MIT students and a fifth who did cooperative work in the MIT Instrumentation Laboratory received recognition for their technical papers at the Northeast Electronics Research and Engineering Meeting (NEREM) held in Boston last Wednesday, Thursday, and Friday.

Richard W. Daniels, a graduate student in electrical engineering received one of two first prizes for his paper "A Mathematical Model for Cutaneous Response." He was awarded a scroll and a cash prize of \$100.

Daniels received his B.S. R. W. Daniels in engineering from Brown University in June. He is currently attending MIT under the Communication Development Training Program at Bell Telephone Laboratories, North Andover, Massachusetts.

In addition to Daniels, four students associated with MIT, were awarded honorable mentions and received commendations and scrolls.

Karl Chang '65 received an honorable mention for his paper "Digitally Controlled Logarithmic Attenuator." Chang, a Course VI-2 major, works part time in computer circuit design.

Steven Croopnick '64 and My-

ron Rosenbloom earned recognition for their paper entitled "Digitized Fractional Wave-length Resolution of Target Displacements Using a Laser Interferometer." Croopnick and Rosenbloom worked in the MIT Instrumentation Laboratory in the area of electro-optical research.

Croopnick, currently a Course XVI graduate student, received the Luis de Florez award for "outstanding ingenuity in aeronautics and astronautics" in 1964. Rosenbloom, a graduate student at Northeastern, spent his undergraduate cooperative work assignments in the MIT Instrumentation Laboratory.

Steven M. Schlosser '64 also received an honorable mention for his paper "A High Power, Fast Recovery Deflection Amplifier." He is currently a Course VI graduate student.

NEREM is an annual conference sponsored by the New England sections of the Institute of Electrical and Electronics Engineers. The conference, usually held in the early part of Novem-

ber, is one of four major meetings in the U. S. covering the electrical and electronic sciences. It has been traditional for NEREM to sponsor a student paper contest. Details are normally announced in late spring.

MIT worker killed

Thomas Joseph Santos, 23, an employee of the MIT Graphic Arts department, was killed instantly Saturday night when the car in which he was riding smashed into a pole on Route 116 in Granby. The driver of the vehicle, David White, an apprentice seaman, was critically injured and removed to Holyoke Hospital.

Santos is survived by a father, Joseph, who lives in the Pinehurst section of Billerica.

Dietz' protest fails; Coop elects original candidates to directorship

Only 135 card-carrying Coopites appeared at the annual meeting of the Harvard Co-operative Society in Harvard Hall on October 28, far short of the 1691 members needed for a quorum. Thus the line of succession of Coop directors remains intact—stockholders in the Society elected the original slate as nominated by the directors last week.

An unprecedented effort by a Harvard Square businessman, Sheldon Dietz, to nominate an alternate set of candidates for directors failed when Coop president Stanley Teele read letters from each of the six "nominees" requesting withdrawal of their names from consideration. Included were MIT Professors Kevin Lynch and George Kepes, both of the Department of Architecture and City Planning. Mr. Dietz' nomination of this slate was designed as a protest against the architectural plans for a bridge

from the main Harvard Coop building to the expanded textbook annex.

At the 82nd annual meeting, John G. Morrill, general manager of the Coop, confirmed the possibility of a "slight reduction in patronage refunds if costs rise." He also commented, in response to questions from students, "the Coop will not be undersold... to its knowledge." When Mr. Dietz was recognized near the close of the meeting, he attempted a filibuster. After explaining his concern with the "environs" of Cambridge and Harvard Square, he closed by reading an original poem.

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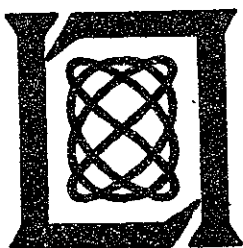
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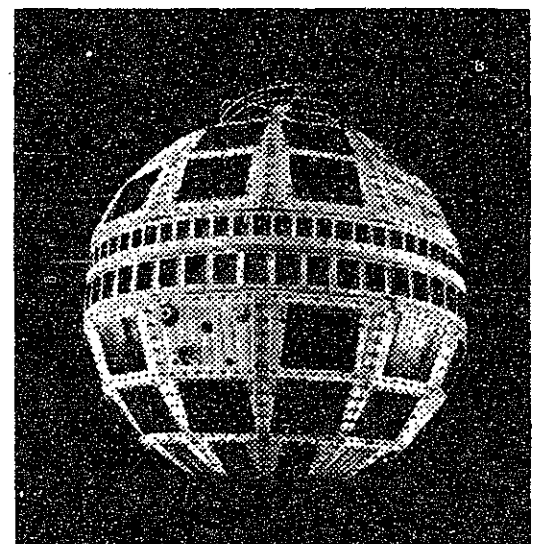
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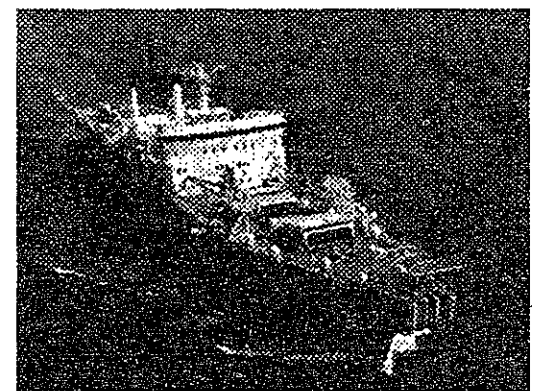


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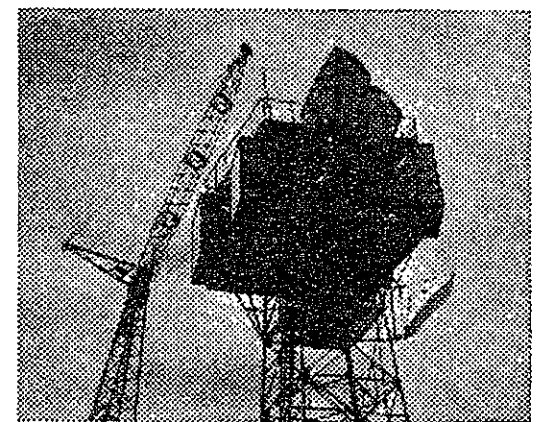
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Elections analyzed Five finalists vie for JP Queen

Prof. Thomas H. D. Mahoney of Course XXI, a newly re-elected Cambridge City Councillor, spoke Friday on "An Analysis of the Election Results" at an informal faculty luncheon sponsored by the MIT Protestant ministry.

Mahoney, whose own academic interest is in the field of political history, spoke largely on the Volpe-Bellotti gubernatorial race and other local and Commonwealth issues. Because of the obviously prevalent ticket-splitting in Massachusetts last week, Mahoney indicated that he felt that Goldwater's candidacy and positions did not affect the vote for Volpe or other Republican candidates.

The heated Bellotti-Peabody primary campaign, the silence of Boston Mayor Collins, the "fortnight" stance on civil rights and the sales tax, all combined to defeat Bellotti according to Mahoney.



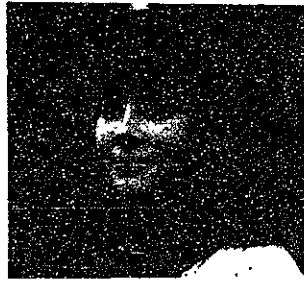
Lindy Richards
Garland Junior College
is the date of
Don Schwanz '66



Abigail Natelson
Radcliffe College
is the date of
Stuart J. Vidockler '66



Priscilla Juvelis
Elmira College
is the date of
Ross Faneuf '66



Cynthia White
Wellesley College
is the date of
Art Warsaw



Ann Aydelotte
Colorado State University
is the date of
Rich Lucy '66

Five finalists for the coveted title of Junior Prom Queen were selected last week by vote of the undergraduate body. The girls were chosen from thirteen original candidates, each of whom was the sole representative of an MIT living group. 525 students were drawn to the booth in Building 10 to make their choice for the JP Queen.

At the Friday night formal dance Beaver Key officials will select the queen from these five finalists. The winner will be announced at intermission, and the other four young ladies will be introduced to the assembly. Junior Class President Hank Perritt will then crown the prom queen.

Taking a more active part in the festivities this weekend than in previous years, the JP Queen will present the Field Day Trophy to the winning class. In addition she will have a seat of honor at the Saturday afternoon and evening events.

A native of Marblehead, Massachusetts, Priscilla Juvelis attends

Elmira College at Elmira, New York. She is a sophomore majoring in political science. Next spring she will participate in an international forum at the United Nations in New York which is being sponsored by girls' schools across the country. Her interests also include music and art.

Originally from Collingsworth, New Jersey, Cynthia White is now attending Wellesley College as a sophomore majoring in political science. Although she has a strong interest in drama, the 5' 5" brown-eyed brunette hopes to make a career of politics. In pursuing her future plans, Cynthia will try to locate a job in Washington, D.C., for the summer.

A petite, black-haired Radcliffe girl, Abigail Natelson is a member of the class of '68 from West Orange, New Jersey. Her interests and experience center about the stage, and she plans to audition for this year's "Tech Show." Abigail has performed as an in-

terpretive dancer and has appeared in several amateur musical show productions.

A graduate as of last June of Garland Junior College in Boston, Lindy Richards hails from Brattleboro, Vermont. The Vermont hills being what they are, skiing has been one of her great interests. Future plans include a job

here in Boston and maybe learning to sail.

Ann Aydelotte's home is in Fort Collins, Colorado, where she is a junior at Colorado State University. Interested in possible future social work, her studies concentrate on sociology. Ann's other interests include skiing in the winter and sports car rallying and mountain climbing in the summer.

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More at Tech Square

Building to open in '66

Construction of the third Technology Square building, at 565 Tech Square on Main Street, will begin next March. These plans as well as construction plans for the nine-story structure, were announced by Dr. James Killian, Jr., Chairman of the MIT Corporation, last week at ceremonies marking the presentation of an Award of Merit in Urban Renewal Design to the Square.

Occupancy of the new building should begin in the summer of 1966. Approximately 800 persons will be employed in the building, bringing the total in the Square complex to 2500.

Technology Square began as an urban renewal project of the Cambridge Redevelopment Authority. Together with the two office buildings now at 545 and 575 Tech Square, the third research building should increase the Square's annual tax contribution to the city of Cambridge to a total greater than \$300,000.

Lester Eisner, a regional administrator of the Federal Housing and Home Finance Agency,

presented awards for design to Mayor Edward Crane of Cambridge, to Gerald Blakeley, Jr., president of Cabot, Cabot and Forbes, area developers, and to Sasaki, Walker Associates, landscape architects.

Dr. Killian praised the Cambridge Redevelopment Authority for "effective sponsorship of the (entire Tech Square) project," and Cambridge city officials for their assistance.

Speed of light sought to .00001% accuracy

The physics and electrical engineering departments are engaged in a joint project to measure the speed of light with unprecedented accuracy.

The new method, being set up and tested at RLE, employs an atomic clock as a time standard and the wavelength of green light from mercury vapor (5460 angstroms) as a standard length. It is hoped that the experiment will provide a value at least a factor of ten more precise and accurate than previous values. This would reduce the margin of error in the value of the speed of light to plus or minus 30 meters per second.

Developing the experiment for the past several years at RLE have been Professor J. R. Zacharias and Professor J. G. King of the physics department, Professor C. L. Searle of the electrical engineering department, M. A. Jaffee of RLE and Dr. G. W. Stroke, formerly of MIT and now of the University of Michigan.

BSO Concert

Tuesday, Nov. 10, "Cambridge" series, 8:30, Symphony Hall; Boston Symphony Orchestra, Erich Leinsdorf conducting; Mozart, Symphony No. 38, in D major, "Prague," K. 504; Berger, Polyphony; Mendelssohn, Symphony No. 3, in A minor, "Scottish," Op. 56.

Thursday, Nov. 12, 7:30, Symphony Hall: Open rehearsal.

Friday, Nov. 13, 2:00, Saturday, Nov. 14, 8:30; Sunday, Nov. 15, 3:00; Symphony Hall; Erich Leinsdorf conducting; Huggler, "Sculptures" for Soprano and Orchestra, Op. 39 (Bethany Beardslee, soprano), World Premier; Mahler, Symphony No. 6, in A minor.

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Police warn autoists

Chief Daniel J. Brennan of the Cambridge Police Department has requested that the cooperation of the MIT community in reducing the number of larcenies that are committed from parked motor vehicles.

The police chief asked each motorist parking in Cambridge to make sure that the key is removed from the ignition switch, the vehicle is properly secured and that valuables such as cameras, radios, tools, etc., are not left in the vehicle.

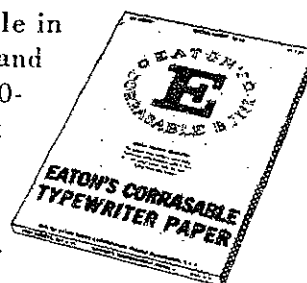


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HUBBARD

After 50 days - the challenge ahead

Fifty days have passed since the start of the fall term; and as usual at MIT, they have been days of almost stupefying fullness. The freshmen are beginning to learn something which never ceases to amaze even upperclassmen: somehow everything gets done in the brief span of one academic year. Often vacations are the only time to stop to realize just how much has been accomplished.

Sometimes it helps in the course of the year to pause a minute, take a breath, and perhaps indulge in a bit of self-satisfied back-patting. And anyone involved in the mainstream of MIT life can find a lot to look back upon with pride.

The days since the beginning of the term have seen the dedication of major new facilities, and the initiation of new research; they have seen the death of some beloved faculty members, and the appointment of others. They have seen the beginning of new approaches in basic physics and chemistry—and the somewhat varied response of the freshmen. They have seen men meeting the challenge of a questioning mind, from a Nobel Prize winner to the youngest freshman.

This fall the sports teams, notably sailing and cross country, have contributed much to be proud of. Publications, mu-

sical groups, and other activities have presented their first efforts with considerable success. The Association of Women Students has held a major intercollegiate conference; plans have been laid for another conference next year. The Institute has entered the excitement of the presidential campaign with a mock election (and picked the winner). The Student Center Committee has unveiled the final plans of the building which may be the most important cohesive force in undergraduate life.

Even more amazing is the task ahead. The newly-elected Freshman Council will soon find a test of its organization on Field Day. The sophomores will soon have to start planning a worthy successor to this year's Junior Prom, which will be as always the undergraduates' most memorable social event. Sports are already in training for spring events. The Institute Committee is planning a reorganization of student government to fit the requirements of changes in student life. In a few brief months most of the student organizations will have passed on the control of their part of campus life to new and eager men.

This activity is food for thought—and for action. It isn't hard to get involved in the stream of frenzied action that is MIT, and involvement of any kind offers one very satisfying reward: at the end of the year, one can look back on the achievements of the year which are the boast of MIT, and say, I had a part in the work and the accomplishment of this institution.

At the end of this year, will you be able to say that?

Two-wheel problem

The New England Journal of Medicine (October 15) has printed a brief article pointing out the negative side of an apparent campus institution: the motor scooter. These "gay, little, economical" vehicles are undoubtedly the best way to beat the Boston traffic and parking problem; but the reasons they are not encouraged are equally obvious.

The journal listed four cases from last year—one of them an MIT freshman—in which a fall, a bump in the road, or a swipe by a passing car resulted in permanent injury or death. The MIT student, a Merit Scholar, was, after a short throw to the street and a blow to the head, "unable to handle arithmetic of a grade-school level."

The doctor writing the article pointed out that this danger hits at a group of the highest potential value to society, and suggested that the faculties of the schools in the area look into the matter.

The MIT administration has taken no direct prohibitive steps, and may not in the future. But care has been taken that the parents of incoming freshmen are aware of the problem in Boston's traffic. A word of caution may be enough to prevent further serious accidents; but on a scooter, caution is not complete protection from a careless driver in a heavy automobile.

Correction

We would like to note that Bill Klein, who wrote to us last week about the unfortunate conduct in Professor Mattuck's lecture, is a member of the class of 1968, not 1966 as was printed. We also applaud the sentiments of the letter, and hope the freshmen will resist the temptation to fall into a habit which has endured too long.

Inside Incomm

Committee newly appointed to improve Tech "image"

By Bill Samuels, UAP

Last year the word "image" was often discussed. One aspect of the problem involved prospective freshmen. Some people felt that many good potential high school seniors did not come to MIT because they did not understand the many opportunities available here. Not enough was known about our fine athletic program, about our many activities, about the diversity of students that actually attend this fine institution.

One positive suggestion that was made, I am sure not for the first time, was that undergraduates help recruit. Maybe selected volunteers might talk to their high schools over vacations, be sent to see accepted high school boys who are debating various schools, etc. There were a myriad of suggestions made, some of which are done in small scale now.

Basically, we students always offered our help but then waited for someone in the administration to come up with a specific plan. I think that this was the wrong approach. We should have done

more than make general suggestions and vague offers to help where needed.

For the above reason, I announce the appointment of a new committee headed by Norm Kaldan from Burton House. This group will come up with a specific program backed by some research. How expansive his group's suggestions are will depend on how they feel after some extended background work. Hopefully, they will come up with a realistic plan that can gain the confidence of the administration. It must be a plan that can be easily continued year after year despite the undergraduate turnover.

Another aspect of the "image" discussion had to do with the publications. In this respect, the MIT catalogue is now being revised. It is being done by a faculty committee with student representation. Another student committee under the Public Relations Committee is working on revising "This Is MIT." If there is any student interested in sitting on the faculty committee for the catalogue, he should leave his name with Betty Hendricks at Litchfield Lounge.

Kibitzer

By Mark Bolotin

First of all, an apology is in order for the column of two weeks ago. In the three-handed game, the nine of spades should be in South's hand, the five in North's, and the seven in West's.

To continue in the presentation of end plays by the three-handed method, today's hand deals with the squeeze.

North
♠ 7
♥ K 7 6 4 3
♦ K 10 8 7 6 5 3
West
♠ Q J 10 9 5 4
♥ A 10 9 8
♣ 4 2

South
♠ A K 6 3 2
♥ Q J 5 2
♦ A Q J 9

South, playing six no-trump, must pick up his twelfth trick in one of the major suits. He takes the opening spade lead, then starts on clubs. West, who must make five diamond discards on the clubs, can sluff four spades before he is squeezed. Another spade sluff sets up South's spade suit; a heart discard sets up the twelfth trick in hearts.

The result of adapting the above example to an actual hand

is the following hand.
North
♠ 7 3
♥ K 7 6 4
♦ A Q
♣ K J 10 8 7
West
♠ Q J 10 9
♥ A 10 9 8
♦ 10 9
♣ 5 4 2
East
♠ 8 5
♥ 3
♦ 8 7 6 5 4 3 2
♣ 9 6 3
South
♠ A K 6 4 2
♥ Q J 5 2
♦ K J
♣ A Q

West leads the spade queen in the six no-trump contract. South plays his queen-jack of spades. The queen holds, but on the jack, East shows out, and West wins with the ace to return another spade. At this point, South's only hope is that West has at least four spades, so that he can be squeezed. South cashes five clubs and discards two spades and a heart, as West sluffs two diamonds. Then South cashes two diamonds to complete the squeeze. West can throw one spade, but then he is squeezed. Another spade discard sits up South's six; a heart sluff sets up North's seven.



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Unsigned editorials in The Tech are the opinion of The Tech's Board of Directors, not that of MIT. The Tech welcomes letters from its readers. Space permitting, such letters will be printed in whole or in part, if deemed by the editor to be of sufficient interest or benefit to the community. Brevity increases the chance of publication. Anonymous letters will not be printed, but names will be withheld upon request.



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Jet train studied

Project suggests new transportation systems

By Bob Horvitz

Editor's Note: This is the second in a series of three articles on Project Transport. Project Transport, as was explained in last week's issue of The Tech, is a comprehensive study of the technological potential for high speed transportation in the Northeast Corridor.

A 200 mile-per-hour jet propelled "train" which connects the entire Northeast Corridor and never slows down or stops because it accepts "cars" rather than individual people into its system includes just a few of the concepts now being studied by the participants of Project Transport.

The project's main concern, according to its director, Prof. Robert J. Hansen, "is the evolution of an entirely new system to transport people at high speed from door to door in the region between Boston, Mass., and Washington, D.C., through 1980."

Any transportation system should meet the requirements of speed, accessibility, comfort, low cost, frequency and safety, while

being readily adaptable to alterations necessitated by increases or shifts in population.

To best meet these objectives, Project Transport has studied a great number of alternate possibilities in each area, a few of which are presented here. These ideas are merely suggestions, and are by no means considered as actual solutions to the transportation problem.

First of all is the network system itself. Existing rail facilities might be upgraded to yield potential rates of about 125-130 mph. However, such improvements would probably decrease terminal to terminal travel time by no more than a half-hour and would not significantly alter railroad patronage without major improvements in passenger facilities and services.

Another possibility for the network would be a direct path from Washington to Boston, with turn-off tracks at intermediate cities, such as Baltimore, Philadelphia, New York, Hartford and Providence. This system would necessitate a new or greatly improved right-of-way.

A great deal of time could be saved if trains on the main track ran continuously, for most time is now lost in acceleration, deceleration, and time actually at rest. This wasted time might be eliminated by either a) transferring the passengers in transit to a local vehicle which runs parallel to the through vehicle during the transfer, or b) switching parts of the through vehicle to the local loops where it becomes the local vehicle.

In the former possibility of high speed "capsule" transfer,

the through vehicle would consist of a number of passenger and/or freight capsules and an appropriate number of empty slots. The through and local trains run side by side and exchange capsules, losing no time in the process. Similarly, the local train stops just long enough to release and obtain capsules, saving the time required to let passengers to exit and enter. During the whole operation passengers are seated, and only passengers newly arrived on the through vehicle who want to exit at intermediate stops have to transfer along a passage to the appropriate capsule. Luggage would similarly be handled in capsules.

The second possibility includes a high speed through vehicle which consists of a number of local vehicles which could be detached from the end of the vehicle and could then use their own propulsion for local stop-go operation. The designing of individually owned vehicles which would run on streets and highways and could also become both the through and local vehicles of a new transportation system is also a possibility.

Intimately connected to the network system is the type of vehicle which is to run on it. The vehicles may be considered under three basic headings: a) suspension and guidance, b) propulsion, and c) control. Suspension systems are of three basic types: mechanical, fluid, and a combination of them. Mechanical systems consist mainly of wheels, with lateral reactions provided by friction forces. The speed limitations of present tires are primarily due

(Please turn to page 8)

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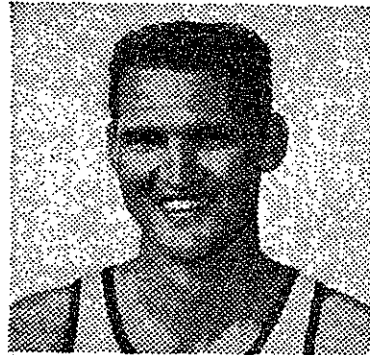
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Works of seven American sculptors on exhibition at Hayden Gallery

The works of seven American sculptors will be exhibited in the Hayden Gallery through December 7.

Peter Agostini, of the School of Painting and Sculpture at Columbia University, has exhibited his works at the New York World's

Fair and the 1963 Sao Paulo Biennial, as has George Sugarman of Hunter College.

Mary Frank is on the staff of the New School for Social Research and has some of her works exhibited in the Art Institute of Chicago. Joseph Goto and Will Horwitt also have their works on view at the Art Institute as well as several private galleries.

Toshio Odate of Tokyo has had one-man shows at the Stephen Radich Gallery as had William Tarr.

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"GREAT FOR A DATE"

movies . . .

'My Fair Lady' is back as film

By Andy Seidenfeld
Yes, it's finally here, the film we've been waiting to see for a long time: 'My Fair Lady.' It's difficult to describe this movie because there are so many outstanding points about it. So for the sake of lazy people who would rather not read on; it was superb.

The main attraction is obviously the music. The songs are very 'catchy' you'll be singing them for days if you aren't already now. Andre Previn scores high once more by supervising and conducting the music. He has already won several top awards, including an Oscar for 'Porgy and Bess.' Had Shaw composed any songs, one would surely think that 'A Hymn to Him' would have been one of them, for the lyrics seem to be made up of that Shaw wit.

Audrey Hepburn is as charming as ever. When given the part, she remarked that she would try to do as well on the screen as Julie Andrews did on the stage. However, her Cockney accent is somewhat 'foreign', it does not sound quite as it should. But after several laborious lessons she does not use it any longer. Her wardrobe is beautiful (I'm running out of adjectives!), keep your eyes wide open for the ballroom scene.

Alfred P. Doolittle, Eliza's father, is played by Stanley Holloway who also played the part on the stage both in London and in New York. 'With a Little Bit of Luck' and 'Get Me to the Church On Time' are the two songs that he will be remembered for.

The loser of the bet, Colonel Pickering, is portrayed by Wilfred Hyde-White. Pickering has a wager with Higgins, that the professor will not be able to transform Eliza's linguistic ability within six months. This is the basis of the whole story. No wonder Pickering loses the bet; his voice is not very good, but we only hear him sing a solo once, and it isn't even a complete song.

Last but not least of the cast is Theodore Bickel. He has a small but amusing part; the phonetics specialist who can always recognize an imposter by the way he or she speaks.

The scenery could be somewhat better, mainly the visit to the race-track, Ascot. For those of you who don't know it, Ascot is 'the' race in England. Only the most elegant people are seen there. As previously mentioned the costumes are very colorful, so you can imagine what they are like for this scene.

The photography is as would be expected for such an all-rounder.

MY FAIR LADY at the Saxon Theatre; starring: Audrey Hepburn as Eliza Doolittle; Rex Harrison as Professor Henry Higgins; Stanley Holloway as Alfred P. Doolittle; Wilfrid Hyde-White as Colonel Pickering; Gladys Cooper as Mrs. Higgins; Jeremy Brett as Freddy Eynsford Hill; Theodore Bickel as Zoltan Karpathy; and Mona Washbourne as Mrs. Pearce; produced by Jack L. Warner; directed by George Cukor; lyrics by Alan Jay Lerner; music by Frederick Loewe; music supervised and conducted by Andre Previn.

'My Fair Lady' is given the full treatment for effect, including Super Panavision 70. Some interesting ideas are used, taken from the play, mainly: a street scene

starting off without anyone moving at all and then all the hustle and bustle just beginning at once. Background is also used for effect in certain shots, such as the scene in which 'On the Street Where You Live' is sung.

If you have seen the stage show but not with the original cast you will enjoy this film even more than the show. If you have seen the show with the original cast you will still think the movie is great and if you have not seen the show, you will just go wild about this picture.

Dramashop presents two one-acts Friday night: 'I'm Dreaming, but Am I?' and 'The Physicist'

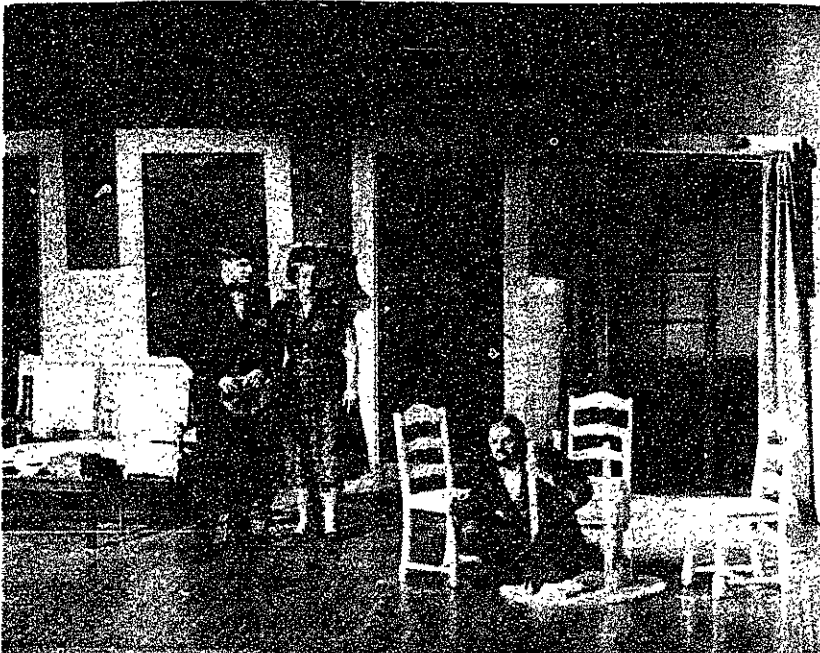


Photo by Philip Dwyer

Dramashop enacts a scene from Friedrich Durrenmat's 'The Physicist,' a comic-tragedy of spies, inventions, murder, and madness, last Friday at Kresge's Little Theatre. Also 'I'm Dreaming but am I' by Pirandello was the second one-act given.

Making the Scene

Scenes from great operas — Boston University Theatre, Nov. 13-14, 8:30, selections from Mozart's 'Così fan Tutte,' 'Don Giovanni,' Werber's 'Der Freischütz,' Verdi's 'Falstaff,' 'Othello,' Puccini's 'Madame Butterfly,' and Rossini's 'Barber of Seville'; free.

Gardner Museum — Myrna Ruiz, pianist, Nov. 15, 3:00, Bach's Partita in B-flat, Beethoven's Waldstein Sonata, Schubert's Wanderer Fantasy; free.

Chapel Organ Concerts — Joseph Coutret, organist, First Presbyterian Church, Englewood, New Jersey, Nov. 15, 4:00; free.

Budapest String Quartet — Peter Serkin, pianist, Nov. 13, 8:30 Jordan Hall, works of Beethoven, Debussy, Dvorak, Nov. 15, 3:00, works of Hayden, Barber, Brahms, lectures.

James Farmer — National Director of CORE, Nov. 11, Kresge Auditorium, 'Science Opens New Horizons for Mankind,' Nov. 15, Jordan Hall, 8:00, free.

S	M	T	W	T	F	S
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21	22	23				

THEATRE
Foreign Film Series — 'Open City,' Nov. 11, Bardwell Auditorium, Fine Manor Junior College, Wellesley, 7:30.
'The Rape of Buny Stuntz' — Kresge Little Theatre, Nov. 12-13, 8:30, experimental theatre in connection with 21. 33T; free.

'As You Like It' — Nov. 13-14, Shakespeare Society House, 8:00, Wellesley College matinee Nov. 14, 2:30.

NEXT WEEK MUSIC
Boston Symphony String Quartet — Nov. 20, 8:30, Jordan Hall, Haydn's Quartet op. 76, Schubert's Quartet in E major, Brahms's Quartet op. 67; series tickets for three performances, \$10.00, \$9.00, \$7.50, \$5.00.

Smathers Brothers — Symphony Hall, Nov. 20, \$4.75, \$3.75, \$2.75.
'H.M.S. Pinafore' — MIT Gilbert and Sullivan Society, Nov. 20-21, 8:30, Kresge Auditorium, \$1.50 in the lobby of Building 10 or at the box office.

Folklore Concert Series — Alfred Deller and the Deller Consort, Nov. 21, 8:30, Jordan Hall; \$4.00, \$3.25, \$2.50, \$2.20.

Gardner Museum — the Curtis String Quartet, Nov. 22, 3:00, Haydn's Quartet in C major, Beethoven's Quartet in C major; free.

Marian Anderson — farewell concert, Symphony Hall, Nov. 22.

BU Faculty Recital — Alfred Karwischer, pianist, Nov. 22, 8:30, Boston University Concert Hall, works of Bach, Barber, Beethoven, Chopin, free.

MISCELLANEOUS
Ford Hall Forum — James Farmer, National Director of CORE, 'New Trends in the Civil Rights Struggle,' Jordan Hall, Nov. 22, 8:00, free.
Sculpture Exhibit — Hayden Gallery, through Dec. works of nine American sculptors, Agostini, Frank, Goto, Horwitt, Odate, Sugarman, Tarr.

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'Caligula' reflects nihilism of today

By Jeff Stokes

Albert Camus has given us in 'Caligula', the story of an emperor who misuses his power and thereby, brings on his own assassination. Cut off Shakespeare's 'Julius Caesar' after the words 'et tu Brute' and change some of the names, we would have a reasonable approximation of the action. Yet if we enlarge 'action' to include the sum total of what happens, 'Julius Caesar' falls into the dust: more takes place in the mind of Camus' Caius Caesar than Shakespeare ever imagined. Or perhaps we should say that the terrific genius of Caligula undertakes more than can be imagined. Nothing is ever finished in modern drama, it can only be begun. Caligula attempts too much, and it drives him to death but maybe not to the end of life.

What does he try to do?
He wants to find the moon.
The death of a sister the day after she becomes his mistress sparks a revolution in his mind. Tremendous awarenesses of the human and of his own condition begin to shake him. He decides

Peace Corps test

A Peace Corps entrance examination will be held at the Brighton High School this coming Saturday, Nov. 14. Information about entrance forms for the tests and application procedures may be obtained from the Placement Office, room 24-211.

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'CALIGULA' — written by Albert Camus; directed by David Wheeler; cast: Peter Douglas MacLean as Cassius, Robert Hazekon as the old patrician, Joseph Maher as Lepidus, Jerome Raphael as Helicon, John MacLean as Cherea, Joseph Hinds as Scipio, John Karlen as Caligula, Barbara Colby as Caesonia, Paul Nichols as Mucius, and Louise Sargent as Mucius' wife; playing at the Hotel Bostonian Theatre.

that all is vanity; he discovers he has never really found happiness. For three days he absents himself from Rome, and there are reports of people having seen him crawling through moonlit gardens. Everyone believes that the sister's death is the cause of his mourning. Yet the sister is forgotten in the larger thoughts that are fighting in his mind; in her place sprouts a disease called nihilism.

As Emperor of Rome he has unlimited power at his disposal. For three years he tries to squeeze the happiness from that power that he fails to find elsewhere. He tries to acquire the moon. He tries to make possible the impossible. He tries to outdo the gods.

Caligula is all of us. We all seek happiness, we all plot daily to usurp the throne of God. That is why we slave until three hours past midnight; that is why we walk two miles to Simmons College every Saturday night. At times we do become God, but do we ever find happiness?

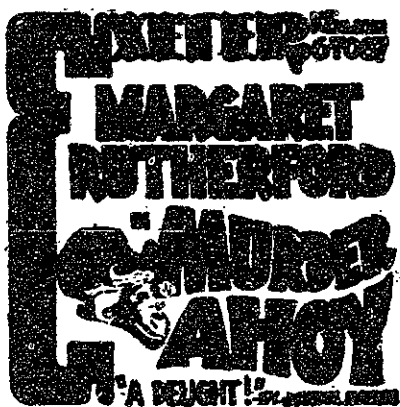
Caligula wants to 'blend the earth and the sky.' In a sense we have that power today in the atomic bomb. And if, in despair of finding happiness by any other means, we fall into the same state of nihilism as Caligula does, what

is to prevent us from turning to the unlimited exercise of our new-found atomic strength for that happiness?

Is Camus a nihilist? No, but he has sympathy. He wrote in 1957 that 'we should understand, while continuing to oppose it, the mistaken attitude of those who, through excess of despair, have asserted the right to dishonor, and have rushed headlong into the nihilism of our day.' A nihilist makes a magnificent tragic hero, but he is hell on his fellow men.

To the genius of Albert Camus we must match the talent of John Karlen. He succeeded because he is able to identify himself completely with the part. He played Fancy Dan in Saroyan's 'Talking to You', a similar part in that it requires a man to be villainous and introspective at the same time.

There is no question of the relevance of this work of art to our times. No ticket price could do it justice.



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Movie Schedule

ASTOR — 'Youngblood Hawke,' no times available.
BEACON HILL — 'Topkapı,' no time available.
BOSTON CINERAMA — Mediterranean 'Holidays,' evenings 8:00, matinees Wed., 2:00 Sat. and Sun. 2:00 and 5:00.
BRATTLE — Harold Pinter's film of his play 'The Caretaker,' plus 'Dream of the Wild Horses,' starting Sunday; Folanski's 'Knife in the Water,' plus his 'Two Men and a Wardrobe.' Shows daily 5:30, 7:30, 9:30, matinee Saturday and Sunday at 3:30.
CAPRI — through Nov. 12, 'One Potato, Two Potatoes,' 10:45, 12:35, 2:25, 4:15, 6:05, 7:55, 9:45, starting Nov. 13, 'The Candidate,' no times available.
CENTER — starting Nov. 11, 'Roustabout,' no times available.
COOLIDGE CORNER — today only, 'The Pink Panther,' 3:00, 9:35, 'From Russia With Love,' 1:00, 7:30, Nov. 11-12, 'Fantasia,' 2:45, 8:25, 'Starting Nov. 13, 'Night of the Iguana,' 2:30, 9:15, Sat. 5:25, 9:10, Sun. 5:40, 9:15 'Honeymoon Hotel,' 1:00, 7:45, Sat., 7:35, Sun. 4:10, 7:40 starting Nov. 17, 'Yesterday, Today, and Tomorrow,' 8:40.
ESQUIRE — 'Of Human Bondage,' and 'To Bed or Not To Bed,' no times available.
EXETER — 'Murder Ahoy,' 2:00, 3:45, 5:35, 7:20, 9:10.
GARY — 'Mary Poppins,' 9:00, 11:30, 2:00, 4:30, 7:30, 9:30.
HARVARD SQUARE — Review Day Today: 'Lolita,' 1:15, 5:15, 9:15; 'Saturday Night and Sunday Morning,' 3:45, 7:45, Starting Wednesday: 'Yesterday, Today and Tomorrow,' 1:45, 5:35, 9:25; 'No Trees in the Street,' 3:50, 7:45.
KEITH MEMORIAL — Through Nov. 12, 'Send me no Flowers,' 11:25, 2:50, 6:10, 9:40, 'Blood on the Arrow,' 9:40, 1:00, 4:45, 7:50, starting Nov. 13, 'Kitten with a Whip,' no times available.
LOEW'S ORPHEUM — 'Rio Conchos,' 9:45, 11:40, 1:40, 3:40, 5:40, 7:40, 9:45.
MUSIC HALL — 'Where Love Has Gone,' no time available.
PARAMOUNT — 'Joy House,' 11:25, 2:45, 6:10, 9:30.
PARIS CINEMA — 'Lili,' 2:00, 4:00, 6:00, 8:00, 10:00.
SAKON — 'My Fair Lady,' evenings 8:30, matinees Wed., Sat., and Sun., 2:00.
Theatres
CHARLES PLAYHOUSE — 'The Rivals,' opening Nov. 11, Tues.-Fri. 8:30, Sat., 5:30, 9:00, Sun., 3:00, 7:30.
COLONIAL — 'Poor Richard,' evenings 8:30, matinees Thurs., 2:15, Sat., 2:30.
HOTEL BOSTONIAN PLAYHOUSE — 'Caligula,' Mon.-Fri. 8:30, Sat. 6:30, 9:30, Sun., 5:00, 8:30.
SHUBERT — 'She Stoops to Conquer,' Nov. 10, 12 (matinee), 14 (evening), 'Hedda Gabler,' Nov. 11 (matinee), 13, 'Liliom,' Nov. 12-14 (matinee), 17, Nov. 10-12, 8:00, other evenings 8:30.
WILBUR — through Nov. 14, 'P.S. I Love You,' evenings 8:30, matinee Wed., 2:15.

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(NO CLASSES WEDNESDAY)

Project Transport studies systems for vehicle design and operation

(Continued from Page 5)
to decreased strength of the material when it is heated by local elastic deformations (in the contact area). Fluid suspensions normally have no direct contact with the guideway and are of three types: ground effect machines which ride on a pillar of comparatively low pressure air, high and low pressure fluid slider-bearings and aerodynamic lift surfaces.

Alternate propulsion modes either require contact (traction) or are of a non-contact impulse-reaction or field type. The range of suggestions has included electric motors, gas turbines, and internal combustion engines in conjunction with mechanical traction drives, and non-contact methods like jet propulsion and ducted fan and propeller drives.

Control of the direction is the third main feature of the vehicle. In addition to switching by actually transferring the vehicle (or capsule) from one guideway to another parallel guideway, a direction change can be accomplished by either physically changing the direction of the guideway or by changing the interaction between the suspension and the guideway, whether from within the vehicle or from the guideway. For example, the right part of the lateral fluid bearing could be removed for a left turn; the resulting centrifugal force keeps the vehicle upright as it makes the turn. Afterwards, the original connection is renewed.

There are three basic types of structures which might be used to support a new transportation system. They include underground, surface, and elevated structures, or combinations of these three. These concepts must

Program of orientation planned for newcomers

A special program for newcomers to MIT will be held at the Faculty Club tonight. President and Mrs. Stratton will host over 300 heads of departments, Lincoln Lab division heads, and new faculty and staff members and their wives at a dinner and orientation program.

Moderator for the program will be Prof. H. G. Stever. Dr. Charles Townes will speak as Provost on the academic program; Dean William Speer will discuss student life. Vice President Carl Floe will discuss the research program and Prof. R. Lamson of the Humanities Department will treat cultural opportunities.

The program is the third in as many years; it was organized by the Newcomers Coordinating Committee, headed by Mrs. Alfred Harper, wife of Professor Harper of Course XX. Dancing will follow the dinner and program.



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be evaluated with regard to the following factors: flexibility of route; location; acquisition of right-of-way; motions of the structure; cost and ease of construction; vulnerability to damage by hurricanes, earthquakes, sabotage, or war attack; and ease of operation. A comparison of these concepts and factors reveals certain advantages to each idea, and more research is necessary to determine which combination would probably be best.

Pound on Einstein: 'Red shift' obtained

A Harvard Professor of Physics has published a confirmation of Einstein's relativistic "principle of equivalence." The results, concerning theoretical equivalence of gravitational fields and uniform acceleration were released in Physical Review Letters November 2, by Robert V. Pound, a physics professor, and his research associate, Joseph Snider.

Confirmation of the relativistic "red shift" predicted by the theory of relativity was obtained to within .003 per cent. A 75 foot vertical shaft, with a light source at the top and absorber at the base, was used to measure the effect, which in order of magnitude was approximately 2 parts in a quadrillion.

Execcom elects eight to plan conference

The Executive Committee of Inscomm elected Saturday members of a Conference Committee. This committee, which is a temporary Inscomm subcommittee, will plan and run an MIT intercollegiate conference that is tentatively scheduled for early next fall.

Chairman of the committee is David Mundel '66, of SAM. Elected to the committee from the 18 candidates interviewed were: Bill Pecora '66, of ATO; Paul Ruby '66 of DU; Den Sivers '66, of PDT; Jim Sweeney '66, of CP; Terry Vander Werff '66, of BTP; Art Warshaw '67, of AEP; and Jurgen Hahn '66, of PDT.

Offer foreign jobs

AIESEC establishes chapter here

Editor's Note: This is the first in a series of two articles on the Association Internationale des Etudiants en Sciences Economiques et Commerciales. Next week's article will be a report by MIT students on the AIESEC traineeships in Turkey and England.

The Association Internationale des Etudiants en Sciences Economiques et Commerciales (better known as AIESEC) has recently established an active chapter at MIT. The objective of the organization is to "promote international understanding through education." At present its main activity is arranging summer exchanges of commercial science, economic, and business students, throughout some forty countries. Begun in France in 1948, AIESEC now includes all western European countries, many countries in Africa and Latin America, Japan, South Korea, and Australia, and additional countries will soon be participating.

Students are placed in on-the-job "traineeships" with private companies, public utilities, or government ministries. The traineeships are better paying than local standards, are educational and are often closely related to the student's field of study. Typically, he visits many departments of the host company, and in his off-hours may participate in trips and other activities organized by the local AIESEC chapter, for a major objective of the organization is to introduce the student to the country he is visiting in greater depth than a tourist could expect.

Only in German, French or Spanish speaking countries is it necessary for the exchangee to know the native language. He usually stays two or three months and may live with a family or in a student hostel. The trainee-

ship may lead to other opportunities, like speaking engagements, after returning to America, or paid reporting for an American magazine.

Like its counterparts at fifty American universities and numerous campuses overseas, the MIT group is student organized and run. Its work during the school year is meeting local businessmen and interesting them in the program. For every firm here which provides a summer traineeship, hosting a foreign student, an AIESEC-MIT member is enabled to spend his summer on an overseas traineeship. Last

year members of the new AIESEC chapter were offered jobs in France, England and Turkey.

The only qualifications are a background of at least two management or economic courses and an interest in other peoples and countries. For those who could not go overseas for the summer, there is the whole interesting area of arranging activities for the foreign students coming to America. Membership is open to undergraduates or graduates, Americans or foreign students; for more information contact George Leslie, X-2893.



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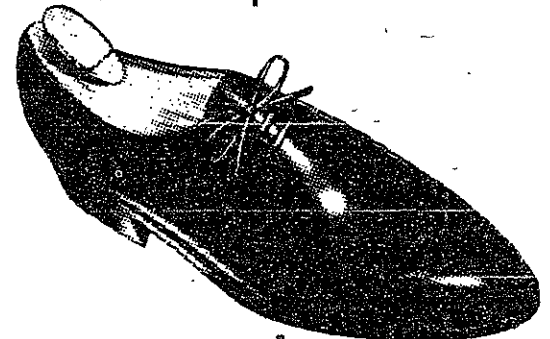
(Assoc. Prof. of Biochemistry at B.U.)

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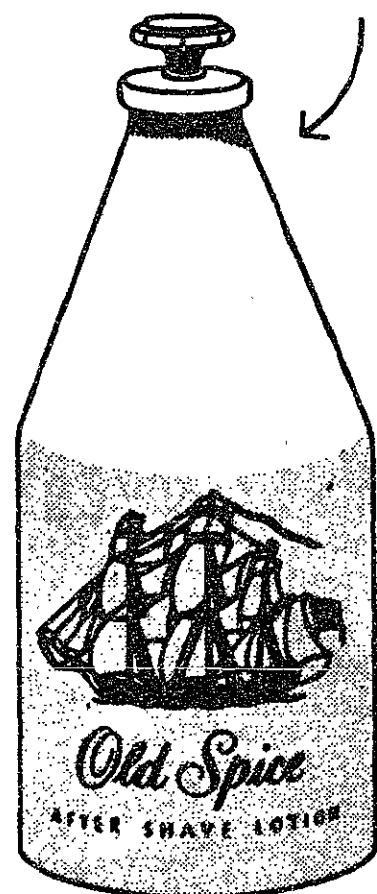
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Open House to honor best display

The 1965 Open House Committee has started plans for MIT's biennial open house, according to the committee's chairman, Henry Lichstein '65.

This year's program, to be held April 10, will be open to the Bos-

Offices, facilities move to Daggett Building

The relocation of Institute offices and facilities in the Daggett office building, a former candy distributor's office building, has begun. The MIT Credit Union, now located in the Hayden Library building, will move to the 6th floor of Daggett, now designated E19, this week.

Plans for future relocation into the structure, which has been used in recent years for storage, include the paymaster's office and other administrative but non-academic offices. Full use of the building, located on Ames Street, is not expected for some months.

ton area general public, as well as to high school students in eastern Massachusetts and all those with connections to the MIT community.

The eight-man committee has requested that each academic department appoint a faculty member to work in liaison with the committee in arranging displays of wide public interest. A prize of \$100 to further student-faculty relations will be awarded to the department having the best display, judged on extent of student participation and public interest.

Union slates fete

The Research, Development, and Technical Employee's Union, one of five unions of MIT workers and technicians, will hold a Victory Banquet and Dance on Friday, Nov. 13 at Moseley's on the Charles in Dedham. The affair is to mark the occasion of the recent settlement of the unions with the Institute upon a one-year contract.

College World

Oakland College demands credit for heisting Delta Upsilon's bell

Give credit where credit is due, that's the motto of students at Oakland College. Or at least, says the Michigan State News, that was their motto when the Delta Upsilon bell disappeared.

Delta Upsilon, one of MSU's fraternities, owns a bell which is rung at football games when the Spartans score. A few weeks ago, however, it was stolen.

Delta Upsilon received a letter from Northwestern which said that Northwestern students had taken the bell, and that it would be returned after MSU's homecoming game. This apparently upset the Oakland College people, however. They called the State News office later the day the letter was received, requesting that they receive the credit they deserved. They had posed as high school students from East Lansing, pretending that they wanted the bell for their homecoming ceremonies. By the time someone checked with East Lansing High, the bell was gone.

The Oakland people had wanted to use the bell for a birthday party. Whose it was could not be determined by the News.

State of Confusion

Some people confuse schools, as has been shown. But few can equal the confusion of a graduate student at the University of Oregon. For the first time, reports the Oregon Daily Emerald, the school has a graduate dorm: Many of the residents are foreign students, and, since there was a period where housing assignments were unclear, no one noticed an extra man for a few days. When they did, chaos re-

sulted, since the student, from Taiwan, was not registered at the school. It was several days before he realized he was supposed to be at Oregon State.

What Breakage?

A Michigan State senior girl was at the correct school, but when she decided that the room she had rented wasn't right, she had problems.

The girl, Sandra Feldman, had agreed to rent a room advertised at the college's off-campus housing office. She had then paid the landlady a week's rent in advance (\$9) plus a breakage deposit (\$10). The next day she decided to rent a different room, and went back to the landlady to collect the breakage deposit. She was refused.

It wasn't the money she wanted, said Sandra, it was the principle of the thing. "... when you're young and a student, people think they can get away with this sort of thing." She sued.

In spite of the landlady's protests that the fee was also a room deposit and not a breakage fee, Sandra won. The \$10 was returned, and the landlady was required to pay court costs and Sandra's legal fees.

Ten-shun!

Not only are coeds winning in the courts but, says the Ohio

State Lantern, the ones in uniform now rate a salute.

Ohio State, it seems, has an Army ROTC program and a Coed Cadet Corps. And Coed Cadet Major Janet Hennessey outranks most of the men in Army ROTC. Protocol requires that Coed Cadets receive the same courtesies as males of equal rank. Thus men at OSU in the ROTC program must forego the usual greetings and must salute. Which perhaps has sent cadets hunting through the regulations for information on how to date a superior officer.

Going Up

Females, it appears, are operators in more than one sense. They've also taken over the elevator at Michigan State's Student Services Building. This was only temporary, though, since the girl in question was 11 years old.

While waiting for her mother on the second floor, Michelle Dean, the 11-yr.-old, got the idea for her new job. So, letting no grass grow underfoot, she climbed aboard and started conveying passengers. The State News relates her conversation with its news editor. Among other topics, she inquired about her cousin, a freshman at MSU. No response was elicited from her passengers.

She did not seem to mind serving without pay. "I like to ride elevators," was her explanation.

Dr. Bowker appointed Chancellor of City University of New York

A Course XVIII graduate in the MIT class of 1941 was inaugurated last week as Chancellor of the City University of New York. Dr. Albert H. Bowker, who left his job as dean of the Graduate Division of Stanford University in 1964 to begin work in New York, took on his new duties in elaborate ceremonies Thursday in the Great Hall of City College, one of the senior colleges of the university. Mayor Robert F. Wagner and James E. Allen, New York State Commissioner of Education, brought official greetings from the city to the ceremonies.

Bowker, a native of Winchendon, Massachusetts, remained at the Institute after his graduation as a research assistant in the math department until 1943. After a

brief period of work for the federal government, he received his doctorate from Columbia in 1949. Since then he has worked continuously in the math department and as dean at Sanford. His research interests were quality control and continuous sampling.

The new Chancellor's inaugural address explicitly revealed some plans for expansion and change in the city university system. The University now includes four senior colleges (CCNY, Hunter, Brooklyn, and Queens) and six junior colleges. The capital cost of expansion in all levels of the university will be "something like \$55 million a year."

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Tech Campus Patrol does investigating, parking, ambulance

The MIT Campus Patrol headed by Captain Norman S. Sidney, is called on to handle almost every type of situation occurring on campus.

Not only does the patrol handle investigations of robberies on campus and patrol the campus to keep outside thieves from entering, but it also handles parking violations, ambulance calls, and all other types of emergency calls coming over the special "100" line on extensions and dormitory phones.

Calls on the 100 phone vary from real emergencies to people locked out of their rooms or offices to, as one officer put it, "people whose shoelaces have come untied." Hacking on this line is a common occurrence, according to Lieutenant James Olivieri, second-in-command of the patrol.

The Campus Patrol came into existence as an entity in 1958, as an outgrowth of the Security Force, which at that time combined the duties of the patrol with those of the many guards of classified areas around the Institute. It has grown from the men allotted it then to its present strength.

All members of the patrol are constables in Cambridge, and generally handle affairs on campus instead of the Cambridge Police, says Sidney. This is because the members of the patrol are more experienced in dealing with students, and because the Institute is in itself a community with its own distinct police problems.

Although the patrol now has two cars, only one can be used at one time, since there are not at present enough men to keep both cars on constant patrol.

The backgrounds of officers of the patrol are generally related to work in either the police or the armed forces. Many of the officers have retired from the services after 20 or more years. Others have retired from the State Police or from other police forces, and one is a retired FBI man.

In general, says Sidney, the patrol encourages students to come to them with problems relating to the patrol's work. "If we can't help them, we can tell them where to go to," he says.

How They Did

Cross country
MIT (V) placed 4th in Greater Boston Championships

Rifle
Nasson College 1261,
MIT (V) 1251

Sailing
MIT (V) placed 1st in Schell Trophy

Soccer
MIT (V) 4, Brandeis 0
Connecticut 1, MIT (V) 0
Phillips Exeter 4, MIT (F) 1

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Rugby team wins two from Brown as Donalson, Van Tienhoven score

By Neal Gilman

Traveling to Brown this weekend proved extremely beneficial for the MIT Rugby team. After 8 unsuccessful games, the team scored their first victories of the season over Brown by scores 11-8 in the first game and 6-0 in the second. These recent victories improved their season's record to 2 wins, 6 losses, and 2 ties.

Losing in the first half of the first game by a quick 8 points in

Riflemen drop match to Nasson at home

By Karl Frederick

Tech riflemen lost a disappointing match on home territory Saturday, 1261-1251, to Nasson College. Scoring for MIT was led by senior Jim Downward's 270, followed distantly by Karl Frederick '65, 249; Dave Hamada '65, 248; Jim Bridgeman '65, 243; and Charles Marantz '67, 241. Further practice will hopefully put our gunners back on target and into the top scoring column.

Intramural Results

B—Basketball

Burton B 54, Grad Econ B 18
Theta Delta Chi A 38, SPE B 35
Lambda Chi Alpha B 39, Baker D 16
Nuclear Engineering 36, Baker B 23
Bexley 75, SPE C 8
Burton Fine 5th 53, SH C 15
Delta Tau Delta 43, Sigma Chi 38
Phi Kappa Sigma 37, Delta Psi 12
Burton Fine Fifth 56, SPE C 8
Burton C 50, NRSA 48
Student House 59, EC Fourth 25
Baker C 33, ATO B 26
East Campus Bemis 45, AEPI B 36
TEP 26, Baker C 24
Chinese Students 38, Theta Chi B 35
Burton Rebels 60, PLPH B 19
East Campus Monroe 40, Baker E 15

the first seven minutes, the rug-
gers fired back in the second half
with a similar 8 points and later
a three point penalty kick to pro-
vide the winning margin. Tom
Van Tienhoven '66 was the first
MIT player to score, by converting
an offside penalty kick. Bob Don-
alson then scored a three point try
which Van Tienhoven converted
for two points. Van Tienhoven
later scored the winning 3 points.
Overpowering the Brown team in
the second half, MIT controlled
the ball in the lineouts and set
scrums. Forwards, Chuck Wade
and Jim Erman played outstand-
ingly outjumping the Brown play-
ers in many of the lineouts.

In the second game, MIT also
showed the hustle and enthusiasm
seen in the first. Donalson, tired
from the first game, played ex-
tremely well in the second. He
scored all of MIT'S eight points
with a penalty goal and unconvert-
ed try. His first three pointer
would have been enough for vic-
tory because Brown was held
scoreless for both halves.

MIT has been improving steady-
ly since their last three matches.
After losing overwhelmingly to the
Harvard Business School and Old
Blue with scores 27-3 and 23-0,
respectively, MIT has bounced back,
first tying Harvard and then beat-
ing Browne.

With two games left to play
against Holy Cross on Nov. 14 and
Fairfield on Nov. 21, the club
might still finish with an even
won-loss record.

Outlook bright for crew

By Pete Staecker

Coach Gary Zwart's lightweights
are making people forget about
last year's graduating class, and
have had some very encouraging
turnouts this year. The concept
of a "building year" is non-exist-
ent at the MIT Boathouse, and the
lights are getting ready to prove
it this spring by early preparation
now.

With the graduation of Mark
Barron, stroke and captain of last
year's squad, and of six other
regulars, all nine seats are up for
grabs, and there are many hungry
sophomores waiting to fill them.
Two-year letterman and this year's
captain John Proctor, along with
last year's highly successful JV
stroke, Fred Furtek '66, and ex-
Exeter oarsman Bob Reid '67 are
among the hopefuls for the vacant
number eight seat.

Lettermen Wayne Haase '65,
Bert Blewett '66, and Al White '66
are all back this year, but will
have to fight three boatloads of
sophomores, juniors, and seniors
for their varsity seats. The soph-
omore boatload seems to be able
to whip the veterans at will, which
should provide for a mighty Class
Day Regatta, but don't believe

me, come and see for yourself
November 21.

Heavyweights

The heavyweights still remem-
ber their third varsity boat of last
spring that found itself being
called the JV a few days before
the Eastern Sprint Championships
— and lived up to the promotion
by beating Cornell and Navy to
come in third behind Harvard and
Yale. Jack Frailey, varsity coach,
is using this as a starting point for
the fall program, and his men
have showed strong progress in
their small boat training.

The squad still has much of its
depth from last season, but so do
the Harvard, Yale and Wisconsin
crews. Captain John Schilling '65
and returning lettermen Sam
Drake '65, Jim Falendar '65, San-
dy Phillips '66, Tom Rice '66, and
Keith Stolzenbach '66 lead the
crowd of heavies who are looking
forward to another season of musi-
cal seats and many shirts.

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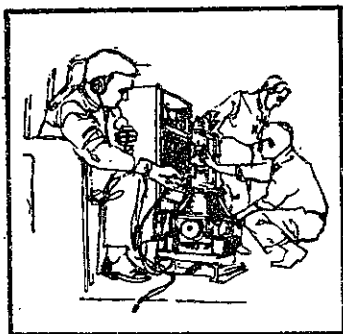
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Looking ahead — and the research and development behind it — is our prime business. Visionary programs now in progress will someday yield optical laser gyros and accelerometers, stellar inertial guidance systems, maneuverable re-entry guidance and control systems, strap-down inertial guidance systems, precision microminiature inertial navigation systems, solid state sensors, complex space information systems for spacecraft, missiles, and aircraft.

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Yell leaders back for second year; Desmond captains crew of nine

"Go Tech, go! Go Tech go!" In your wanderings around the MIT sports facilities, you may have heard these oft-chanted words, but in unison, in girls' voices. You might also have seen the girls connected to these voices going through various gyrations and jumps in time to these chants. These girls, my friend, are the Tech cheerleaders, back by popular demand for their second consecutive season.

For the unbelieving freshman, I must reaffirm my last statement; yes, we do have cheerleaders and they will be out there as an extra added attraction at every home basketball this winter leading the cheers and boosting the Engineers

to every one of their victories.

The girls have been practicing hard almost as long as the team, having started their three-a-week workouts November 2. Veterans from last year's inaugural team include Barbara Desmond '67 as captain, Sue Colodny '65, and Janine Knauf '67, serving as a nucleus for this year's squad. Freshmen Sue Downs, Dougie Gordon, Louise Lentin, and Jenny Rudd round out the varsity squad. The alternate spots are being filled by freshmen Sherry Gulman and Diane Mechler.

The basketball season starts December 5 against Bowdoin, so let's show up and cheer, remember, there's someone to lead you now.

Five major teams 2-0 after 2nd week of play

By Russ Mosteller

Defense was once again the most common ingredient of major intramural basketball games. Political Science and Sigma Phi Epsilon were both able to win with the meager total of 32 points. On the other hand, no losing team was able to amass more than 41.

The game between Grad Econ and Theta Chi, billed as one of the week's headliners, was the week's only real runaway. Grad Econ swished the nets for 61 points, led by Bernard Sherman's 19. In contrast, no Theta Chi player could account for more than seven points, and they totalled 27.

Poly Sci. 32, Baker 29

The week's real thriller was the game between Political Science and Baker A. In a game which emphasized defense and ball-handling, Political Science emerged a 32-29 winner. Both teams had won their first game and were expected to contend for the league title, so more was at stake than just the temporary league leadership.

Grad House increased its record

to 2-0 with a 57-41 pasting of Phi Mu Delta. The Grad House team jumped out to an early ten-point lead, but the Delts battled back to make it a close game until late in the third quarter. Then a final spurt by the Grads put the game out of reach. Jim Ashton totalled 23 points for Grad House, while Francis Tolve '66 was netting 17 for PMD.

Senior House also extended its perfect (2-0) record with a 61-38 tromping of Alpha Tau Omega A. The only highlight of a totally dull game was the total of 22 points amassed by Paul Hoxie '67 for Senior House.

SAE 49, Fiji 34

Sigma Alpha Epsilon jumped out to a ten-point lead within the first four minutes of the ball game and then coasted to a 49-34 victory over Phi Gamma Delta. The Fijis fought them on even terms from there on, but the game was already lost. Substitutes saw considerable action in the second half, since SAE had a 33-22 lead at halftime. Warren Anderson '65 was the big gun for SAE, garnering 17 points.

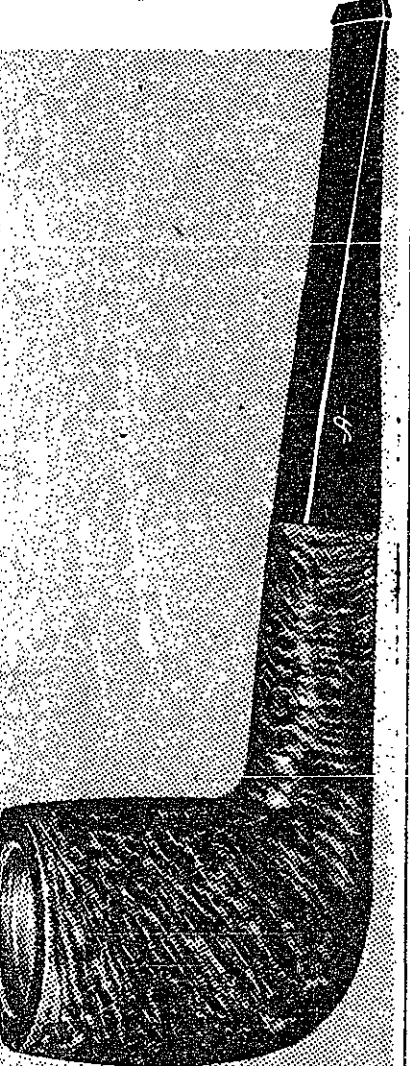
In another low scoring game, Sigma Phi Epsilon edged by Westgate, 32-22. Both teams showed exceptional defenses, although it must be said in fairness that both offenses were far below par. Westgate opened up with an early seven point lead, but SPE was not to be denied. They fought back and the game remained close until the fourth quarter. SPE found the range of the basket briefly, and that was enough to be the deciding factor in the game.

One of the best games of the week was the battle between Grad Management and Lambda Chi Alpha. The game was a real contest throughout the first half, which ended with a 26-23 lead for Grad Management. The game was decided at the start of the third quarter as Grad Management racked up 11 straight points—giving them a 37-23 lead—before Lambda Chi could find the range. They fought back but time ran out on them, and the end saw Grad Management a 37-23 winner.

INSTANT MILDNESS

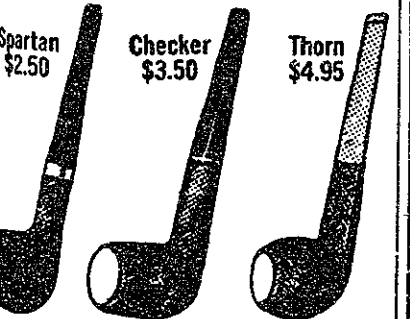
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On Deck

Saturday, November 14

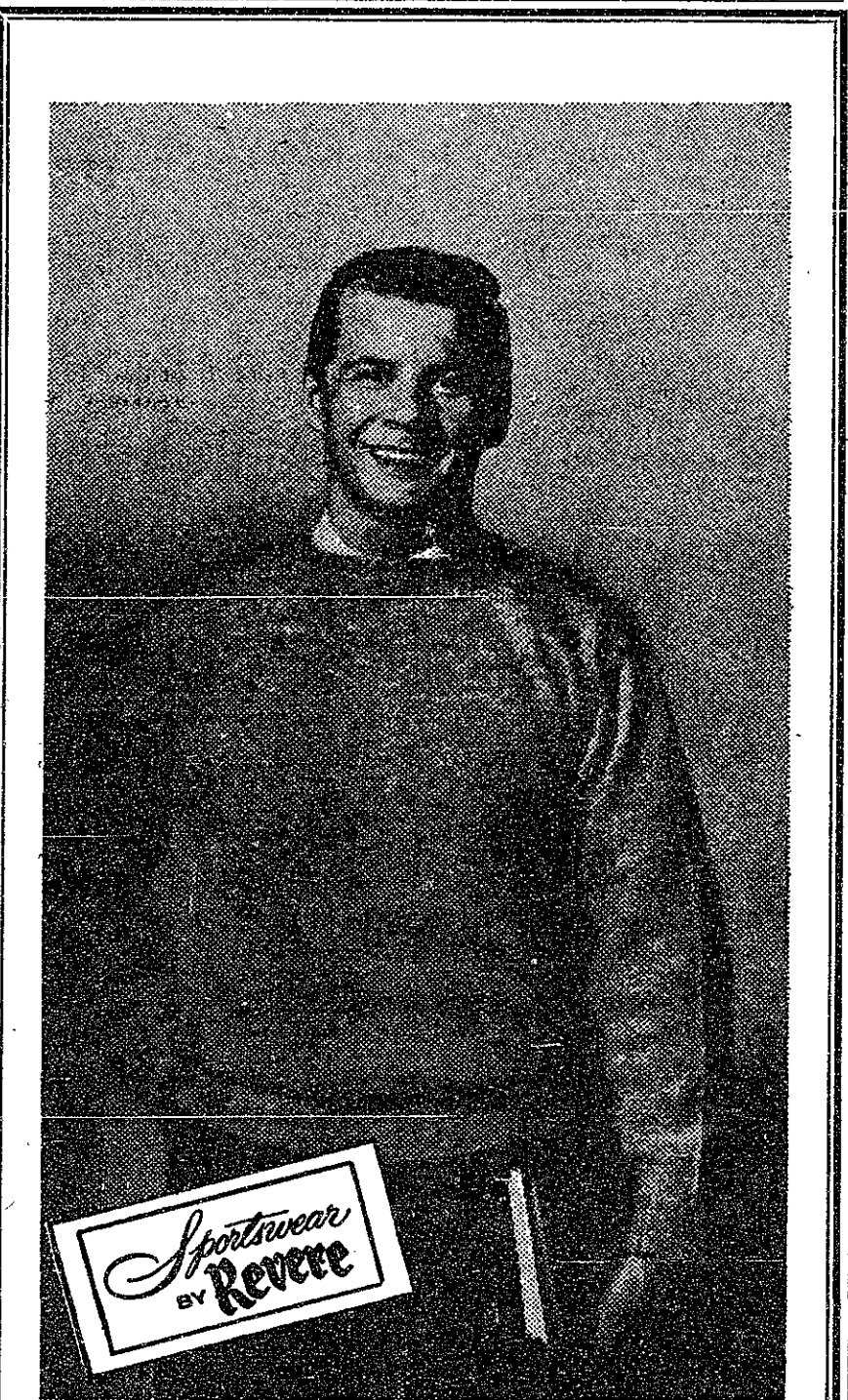
Sailing (V) — Fowle Trophy at Coast Guard (thru Sunday)

Sailing (V) — Staake Trophy at MIT (thru Sunday)

Monday, November 16

Cross country (V) IC4A Easterns at New York

Cross country (F) IC4A Easterns at New York



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Burton House A evened its record to 1-1 with a 42-32 defeat of Sigma Alpha Mu. Again here, as in most of the other games, defense was the predominant factor. Balanced scoring was also characteristic of both teams. Jon Schafer '65 and Bill Petrick '65 led the Burton scoring with 12 and 9 points, respectively, while SAM's leading scorer was Stu Nemser '66, who contributed 13.

Council meeting

The next Activities Council meeting will be held Thursday, November 12, at 7:30 p.m. in the Blue Room on the second floor of Walker Memorial.

According to Rusty Epps '65, the major item on the meeting agenda is the proposed reorganization of activities council.

Women's sailing team cops 1st in two-day meet; Win over second-place Wellesley by 15 points

The MIT women sailors scored their first win after three straight seconds by taking the MIT Invitational Regatta held last Saturday and Sunday on the Charles. The girls took 2nd in A division and 1st in B Division to win out over the 15-school field by fifteen points.

Ruth Beckley '67 skippered all eight championship races in A division and scored 74 points to finish 11 points behind first-place Wellesley. Buckley took two firsts, three seconds, and a fourth to amass her points.

The B division was sailed as a two-day round-robin with 16 races. Alix Bernstingle '68 skippered in fourteen races, taking 7 firsts, a second, and four thirds. Those points, along with a fifth skippered by Karen Henry '67, amounted to 82 points, giving MIT the victory over 2nd-place Georgetown with 69 points.

Serving as crews for the two-day meet were Barbara Desmond '67, Henry, Margaret Buck '68, and Carol Hoffman '67. Second-place honors in the final fall meet went to Wellesley with 141 points.

BULLETIN No. 19

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Sailing team wins Schell Trophy

The sailing team immediately jumped off to a lead on the first race and was never headed as the only question was who would come in second. MIT, the defenders, won the 24th annual NEISA Fall Invitational Regatta for the Erwin H. Schell Trophy over the weekend.

MIT, along with Boston University, Bowdoin, Coast Guard, University of Connecticut, and University of Rhode Island earned starting places in the regatta by winning qualifying events. Brown, Harvard, Holy Cross, and Tufts were chosen because of high average performances at these races. Holy Cross, however, did not attend, so Dartmouth, the alternate, raced in its stead.

The Schell Trophy is the Fall New England Intercollegiate, with teams from the South, Middle Atlantic, East, and Canada. Old Dominion was the first Southern team ever to compete for the trophy, and McGill, the Canadian collegiate champion, also raced. Neither, however, was major competition.

The winds were light and fluky for the first time this year. They steadied some Sunday, more like the usual Charles winds. But even the wind could not keep the favored Techmen from piling up the points. As expected, Coast Guard, URI, and Brown were the major competition but Tufts and BU were surprising. The battle for second was quite a fight.

Division A raced in Tech dingys as Captain Terry Cronburg '66 skippered to a commanding lead. Only once did Terry slip out of the top four in the field of fourteen, and that was a fifth. He had four firsts and was considerably ahead of all other skippers at the time when the second team took over. Ed Shaw '65 crewed for Terry and skippered a race himself. Fred Kern '65 also skippered a race; Joe Ferreira '67 crewing for Kern and Shaw.

Division B raced Harvard Interclubs. Don Schwanz '66 skippered the first twelve with Mike Zuteck '67. Schwanz won one as he was



Photo by John Torode

Terry Cronburg '66, skipper, (left) and crew Ed Shaw '65 in the Keystone lead in the final race last Saturday in helping MIT win the Schell Trophy.

always at the top. He also was leading his division when the second team came in, and MIT was 33 points ahead.

Saturday there was a protest involving Schwanz and his major competition, URI. Coming up to the starting line, URI was directly behind MIT traveling faster. URI was to leeward and headed up and hit Schwanz. One rule says a boat to windward must keep clear of a boat to leeward; but another rule says one boat can't head up unless the other is given sufficient time to get out of the way. The latter rule was the more valid as MIT won the protest.

Chet Osborne '67 and Tom Mainer '67 crewed for each other in

the last two races; Chet placing second in the thirteenth, and Mainer third in the fourteenth.

MIT, with its outstanding skippers Cronburg and Schwanz, is now the favorite for the North American Championship, to be held at Madison, Wisconsin, next June.

Season record 4-6-1

Soccermen split last 2

By Jack Seaquist

Good, strong play was the feature of the week as the MIT soccer team closed the 1964 season with a 4-0 win over Brandeis and a tough 1-0 loss to powerful University of Connecticut.

The second quarter told the story in the Brandeis game which was played here at MIT on Tuesday, and it took but two minutes and eighteen seconds for the winning tally when Rick Gostyla '67 scored on an assist from Mohamed Chikhaoui '65.

Capt. Ed Roberts '65 took it upon himself to put the game on ice as he scored once at 4:25 of the second period and again at the forty eight second mark of the final stanza.

Roberts' second goal came with another assist from Chikhaoui, who also scored the final MIT goal of the season at 2:48. This performance capped a steadily improving season for the senior 'inside left' from Tunisia.

For Roberts it was his 8th and 9th goals of the season, thus making him the high scorer.

Strong defense against UConn

Despite one of the best defensive performances of the season, the offense just wasn't able to move the ball well enough as the MIT men lost their final game by just one goal to UConn. The locally televised game played on Briggs Field was controlled by the visitors' offense, as they put constant pressure on MIT goalie Avram Markowitz '67 who put on a brilliant display all afternoon

in making fifteen saves while allowing only one score against him.

The UConn score came at 3:11 of the second period when Gerry Sherman, the inside right, scored on a skuffle in front of the net when he rebounded a shot bouncing off the goalposts.

The sophomore MIT goalie had a particularly rough afternoon as was evidenced when he had to leave the game for a short stretch in the third quarter as a result of being kicked in the nose in one skuffle.

Although the final record of the MIT soccer team was 4-6-1, the losing season was not the fault of Markowitz, who hails from Brooklyn, New York. Although he is considered relatively short for a soccer goalie, he compiled the very impressive record of 134 saves in eleven games, while only allowing 23 scores.

On the offensive side, three seniors and one sophomore were the outstanding players of the season. Capt. Ed Roberts from Argentina was the high scorer while Nick Stepaniuk '65 from St. Francis, Wisc. kicked in six, sophomore Rick Gostyla from Bloomfield, Conn. had three, and Chikhaoui scored only two, but had many assists. Also, Jose Miron '66 from Guatemala scored one.

With two sophomore stars returning, Markowitz and Gostyla, plus a freshman team which compiled a winning 4-3 record, prospects look bright for soccer at MIT in the future.

Judo Club has two aims

By Jerrold Sabath

Under the direction of Harry Yanagi, who as a fifth degree black belt ranks highest in New England, the MIT Judo Club meets twice weekly at the du Pont Athletic Center. The purpose of the Judo Club is twofold: to teach beginners the basic techniques, and to give higher ranking enthusiasts the opportunity to increase their rank and participate in intercollegiate competition.

Unlike karate or jiu-jitsu, judo is not a means of self defense, but rather a sport. The founder of judo, Jigaro Kano, borrowed many techniques from these forms of self defense, but eliminated all harmful tactics. He added several techniques of his own, and thus the sport of judo was born.

Falling stressed

Of initial importance to the novice is learning to fall correctly, since this eliminates nearly all possibility of injury. Therefore, Mr. Yanagi stresses the art of falling for the first few months. He also emphasizes general calisthenics, and each time the club meets they begin with about an hour of strenuous exercises.

Soon the theory behind the art of throwing—"push when pulled and pull when pushed"—is introduced. The members then become acquainted with the elementary positions, throws, and holds. From this point they strive toward the perfection of these various techniques.

Six brown belts, one black belt

Twice a year, the New England Promotions give those who have a knowledge of judo an opportunity to improve their ranking. The test consists of three parts: a demonstration of form, an actual contest, and a written exam. The "student" ranks are from sixth kyu (beginner) to first kyu, with the lower half commonly referred to as "white belt" and the upper three as "brown belt." Above the "student" ranking is the "black belt" ranking with the "tenth black belt" being the highest possible level one may attain. Among the members of the Judo Club are a black belt, Don Morrison '66, and half a dozen brown belts.

New England Champs '62, '63, '64

Judo is not officially an intercollegiate sport, but with its growing popularity at other New England colleges, the outlook is indeed bright. Meanwhile, the MIT Judo Club holds dual workouts with nearby clubs. Also, in conjunction with Mr. Yanagi's group, the Tohoku Club, Tech held the first New England Intercollegiate Championship in 1962. Now a yearly event, MIT has won each of the three years. In March, 1965, Brandeis University will be the host, and competition will be stiffer. Yet MIT can still be expected to perform well at this meet.

During halftime of the December 8 basketball game, the Judo Club will present an exhibition. Come see a demonstration of the talent and form that beat previously undefeated West Point in 1963, all opponents in

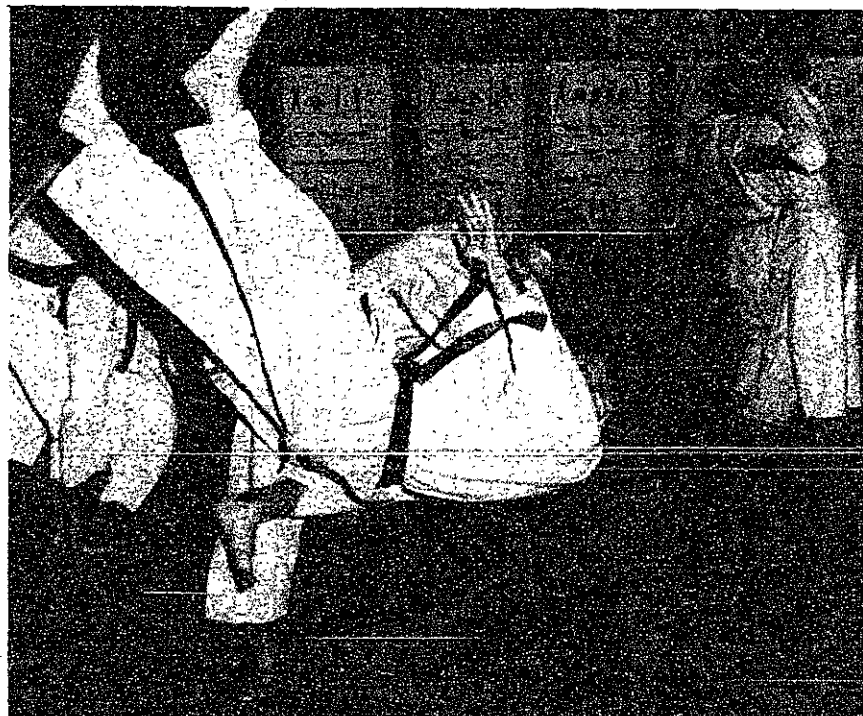


Photo by Bill Ingram

Don Morrison '66, a first degree black belt, executes a deashi-harai (foot sweep) on 2nd degree brown belt Bob Gilmore '62 at Judo Club practice held last Saturday in the general exercise room in duPont Athletic Center.

Sports Spot

Past week disappointing

The past week of varsity sports action did not turn out as well as had been hoped by the teams involved, but marred the general fall sports picture only slightly. The only bright spot was another big win by the Tech sailors to bring their fall record to 6-1 in trophy competition with only one weekend of competition left.

The Tech prospects in the Greater Boston Championships were

hurt severely with the loss of Sumner Brown '66, who had to withdraw because of a heavy cold in favor of more important meets run this week. The loss of Brown caused MIT's fall to fourth behind Harvard, Northeastern, and B.C.; the harriers had figured to top B.C. easily. Brown is back in top shape for the IC4A Monday and small-college Nationals.

The lack of a big offensive punch again beset the soccer in their closing match, which they dropped to UConn by a frustrating 1-0 count, the third one-point loss this fall. This left their final record at 4-6-1, the only fall squad to finish below .500. Now for a look at make-up of this year's squad.

It is a well-known fact that MIT is an international institute with a higher percentage of foreign students than almost any other school. But no where is this more apparent than on the soccer field, for it is here that all these students, from such diverse backgrounds, have something in common.

A look at the roster will give an indication of how varied the team is: Eddie Roberts (Captain) '65, from Argentina; Mohamed Chikhaoui '65, from Tunisia; Giovanni Emmo Capodilista '65, from Italy; Savitra Bhotiwihok '66, from Thailand; Nick Stepaniuk '65 is Ukrainian; Mike Frye '67, England; Enrico Poggio '66, is an Italian living Uruguay.

Carson Eoyang '66, of Chinese descent, born in Pakistan, is now living in New York; Larry Galvin '67, is an American who spent most of his life in Argentina, Peru, and Columbia; and Avram Markowitz '67 is from far-off Brooklyn.

Freshmen close soccer season with 4-1 loss

By John Kopelow

The MIT freshman soccer team ended its season on a sour note last Wednesday with a loss at the hands of Phillips Exeter Academy by the score of 4 to 1. This defeat put their season's record at 4 wins and 3 losses, certainly a great improvement over last year's 1-5 record.

Exeter jumped out in front early in the game, coming up with two goals in the first quarter. Gavin Clowe scored for Tech in the third period; however, in that period Exeter put the game virtually out of reach with two more goals. The game was unquestionably the roughest played by the frosh all year. Center forward George Busby, Tech's leading scorer, was injured in the contest, a factor which certainly contributed to their eventual defeat.

Busby finished the season with six goals to his credit, Gavin Clowe and Sunny Alexis had three each, Julius Gutman had two, and John Sole one. Overall MIT tallied fifteen times in their seven games to their opponents' nineteen.

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